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AVIFAUNA DIVERSITY OF DARMALAK ALI KACH GAME RESERVE AT DISTRICT KOHAT, KHYBER PAKHTUNKHWA, PAKISTAN

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ABSTRACT

Darmalak Ali Kach Game Reserve (District Kohat, Khyber Pakhtunkhwa, Pakistan), has variety of habitats. Field survey was conducted using count method; block method etc. The total number of individuals counted during study was 528. Shannon-Wiener Diversity Index was 3.195 which indicate a high level of biodiversity. The highest number of each bird species observed and data was tabulated and statistical analysis was carried out using Microsoft Excel sheets. Relative Abundance of bird species was also calculated along with species evenness, richness and Shannon-Wiener Diversity Index. During the present survey 27 bird species, belonging to 8 orders and 15 families, were recorded. Out of these, 15 bird species were resident, 5 winter visitors and 6 summer breeders. The present report represents a preliminary data on the avifauna diversity of this game reserve, with the hope that the information will be used in the development of a working plan for the reserve.

Keywords: Avifauna, diversity, Passeriformes, game reserve, Pakistan.

INTRODUCTION

Birds are important indicators of an ecosystem's health, known as friends of farmers, consuming harmful insects, their eggs and larva, with large economic values such as a good source of protein, important scavengers and pollinators and add beauty to environment (Chittampalli, 1993). Birds are part of the food chain and each species has its own unique environmental location (Simeone, 2002). Biodiversity faces serious threats through climate change, soil erosion, over exploitation of plants, increase in human population habitat fragmentation and lack of awareness (Bajwa, 2015).

Various studies pointed out that protected areas increase avifauna diversity and density as compared to unprotected areas (Khan, 2010). Three categories of protected areas are present in Pakistan namely national parks, wildlife sanctuaries and game reserves (Khan, 2006) but most of these are without a scientifically developed working plan. Protective and conservation related studies on biodiversity of the protective areas have started on international level, yet very few are available for Pakistan in different institutions. Darmalak Ali Kach Game Reserve was created for the conservation of birds and other animals, where hunting and shooting is not allowed except under a special permit (Chape, 2005). The present study represents a preliminary report on the avifauna diversity of this game reserve, with the hope that the information will be used in the development of a working plan for the reserve. The main objectives of the research include exploring the avifauna diversity of District Kohat game reserves and to evaluate their habitat preference and distribution in that area.

MATERIALS AND METHODS

Study Area

Darmalak Ali KachGame Reserve (situated 55 Km away from District Kohat, Khyber Pakhtunkhwa, Pakistan: 33° 24.684 N, 071°14.659 E mean elevation 540 m above sea level is a mountain tract with a very hot

summer and cool winter. Wheat, maize and vegetables are cultivated here.

Direct and indirect methods were used for data collection. Indirect method was used for the number of eggs, feathers, and direct method for total counting. For bird's observation binoculars were used. "Birds of Pakistan" field guide (Roberts, 1997) was used to identify the birds. The total number of individuals counted during study was 528. Shannon-Wiener Diversity Index was 3.195 which indicate a high level of biodiversity. The highest number of each bird species observed and data was tabulated and statistical analysis was carried out using Microsoft Excel sheets. Relative Abundance of bird species was also calculated along with species evenness, richness and Shannon-Wiener Diversity Index.

RESULTS

We recorded a total of 27 species belonging to 8 orders and 15 families (Table 1). Out of these, 15 bird species were resident, 5 were winter bird's species and 6 were summer breeders. Common crane and European roller were passage migrant.The total number of individuals counted during study was 528. Shannon-Wiener Diversity Index was 3.195 which indicate a high level of biodiversity. The highest number of birds species were observed of order Passeriformes (n=485). The least number of birds were observed of order Gruiformes (n=5). Most dominant birds of study area were Common Quail (*Coturnix coturnix*) n=71, House Sparrow (*Passer domesticus*) n=62, Grey Francolin (*Francolinus pondicerianus*) n=67, Black Francolin (*Francolinus francolinus*) n=63 and Common Myna (*Acridotheres ginginianus*) n=54. Only Common Crane (*Grus grus*) n=5 was recorded as the least common. Species evenness 0.96 and their relative abundance was also calculated which was 0.134469697, 0.134469697, 0.134469697, 0.134469697 and 0.134469697. Relative abundance of dominant bird species is shown in table 2.

DISCUSSION

During the present study 27 species were observed which belonged to 15 families and 8 orders. European roller, Painted sand grouse, See-see partridge, Chukar, Common quail, Grey francolin Yellow crowned woodpecker, Black francolin, House crow, Common myna, Bank myna, house sparrow, Upland pipit, White-eared bulbul and Red-vented bulbul were resident birds. 15 bird species were resident, 5 were winter bird species and 6 were summer breeders. Common crane and European roller were passage migrant. Shannon-Wiener Diversity Index was 3.195 which indicate a moderate level of biodiversity.

Previous study reported 54 species of birds in district Karak. Out of which *Phasianidae* was very common in district Karak while compared to the results of the present survey, order *Passeriformes* was common (Younas et al., 2017). Another study reported the abundance and distribution of biodiversity at Ayub National Park, Rawalpindi, Pakistan. A total of 60 species of birds were recorded belonging to 34 families and *Phylloscopidae, Sylviidae*and, *Cisticolidae* were found dominant which were more different to the present study of 27 species of birds belonging 15 families, *Phasianidae, Sturnidae* and *Passeridae*were dominant (Qasim et al., 2017).

An ornithological survey was conducted at district Karak, Khyber Pakhtunkhwa, Pakistan for total of 32 bird species belonging to 26 families and 11 orders. Largest numbers of Passeriformes order have been recorded in which the most dominant birds were red vented bulbul, house sparrows, house crows and myna which were more similar to the present survey of 27 birds species, largest number of birds belonging to Passeriformes order and the most dominant birds were common myna, house sparrows and house crows (Rehman et al., 2016).

Table 1: Avifauna of Darmalak Ali Kach Game Reserve.

Common Name	Scientific Name	Grimmett
European Roller	*Coracias garrulous*	Year
Asian Koel	*Eudynamys scolopacea*	Summer
Painted Sandgrouse	*Pterocles coronatus*	Year
See-see partridge	*Ammoperdixgriseo gularis*	Resident
Chukar	*Alectoris chukar*	Resident
Common quail	*Coturnix coturnix*	Resident
Rain quail	*Coturnix coromandelica*	Summer
Grey francolin	*Francolinus pondicerianus*	Resident
Black francolin	*Francolinus francolinus*	Resident
Yellow crowned woodpecker	*Dendrocopos mahrattensis*	Year
Bay-backed shrike	*Lanius vittatus*	Summer
Long -tailed shrike	*Lanius schach*	Summer
Eurasian jackdaw	*Corvus monedula*	Winter
House crow	*Corvus splendens*	Year
Black drongo	*Dicrurus macrocercus*	Summer
Ashy drongo	*Dicrurus leucophaeus*	Summer
Common myna	*Acridotheres tritis*	Year
Bank myna	*Acridotheres ginginianus*	Year
Common buzzard	*Buteo buteo*	Winter
Long legged buzzard	*Buteo rufinus*	Winter
House sparrow	*Passer domesticus*	Resident
Upland pipit	*Anthus sylvanus*	Year
Buff-belled pipit	*Anthus rubescens*	Winter
Black throated accentor	*Prunellaatro gularis*	Winter
White-eared bulbul	*Pycnonotus leucotis*	Year
Red-vented bulbul	*Pycnonotus cafer*	Year
Common crane	*Grus grus*	Passage Migrant

S= summer visitor, W=winter visitor, Y=year round, P=passage migrant, R=resident

Table 2: Relative abundance of five dominant species observed at Darmalak Ali kach game reserve.

Common Name	Scientific Name	Number of individuals	Relative abundance
Common quail	*Coturnix coturnix*	71	0.134469697
Common myna	*Acridotheres tritis*	54	0.134469697
Black francolin	*Francolinus francolinus*	63	0.134469697
House sparrow	*Passer domesticus*	62	0.134469697
Grey francolin	*Francolinu spondicerianus*	67	0.134469697

CONCLUSION

From the current study it was concluded that Darmalak Ali Kach game reserve provides suitable habitat for birds. Habitat degradation and lack of awareness are the major causes of decline to the avifauna of study area. Many plants such as *acacia* (kikar), *Zizipus* (Ber) and others provide shelter and food to avifauna species.

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